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A STATE-WIDE STUDY OF READING PROGRAMS, A RESEARCH REPORT.

BY- MCGUIRE, MARION L.
RHODE ISLAND STATE DEPT. OF EDUCATION, PROVIDENCE

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THE FOURTH-GRADE READING PROGRAMS IN 285 PUBLIC, PAROCHIAL, AND PRIVATE RHODE ISLAND SCHOOLS WERE SURVEYED TO IDENTIFY THE POLICIES, PROGRAMS, MATERIALS, PERSONNEL, AND ENVIRONMENTAL FACTORS THAT AFFECT PRIMARY GRADE READING INSTRUCTION. STATE-TESTING-PROGRAM SCORES WERE USED TO COMPARE THE EFFECTIVENESS OF 20 READING TREATMENTS. A QUESTIONNAIRE WAS DISTRIBUTED IN MARCH 1966 TO GATHER INFORMATION ABOUT (1) THE PRIMARY-GRADE READING PROGRAMS OF THE 1965-66 FOURTH-GRADE CLASSES, (2) CURRENT PRACTICES IN THE ELEMENTARY SCHOOL READING PROGRAM, AND (3) THE EDUCATIONAL AND PROFESSIONAL NEEDS OF TEACHERS WHO TEACH READING AT THE ELEMENTARY LEVEL. DATA FROM THE QUESTIONNAIRE WERE USED WITH STATE-TESTING- PROGRAM SCORES ON THE CALIFORNIA MENTAL MATURITY TEST, THE CALIFORNIA ELEMENTARY ACHIEVEMENT TEST BATTERY, AND THE SCHOLASTIC TEST SERVICE WORK-STUDY SKILLS TEST TO COMPARE GROUPS ON THE BASIS OF KINDERGARTEN EXPERIENCE, KINDERGARTEN AND/OR GRADE 1 ENTRANC AGE, READINESS ACTIVITIES, BASIC READING APPROACH, TEACHER-PUPIL RELATIONSHIP, ORGANIZATION FOR READING, MATERIALS FOR BASIC INSTRUCTION, BASAL READERS, SUPPLEMENTARY MATERIALS, CONSULTANT ASSISTANCE, INDIVIDUAL HELP, CENTRAL LIBRARY, NUMBER OF BOOKS PER CHILD, CLASSROOM LIBRARY, CLASS SIZE, SOCIOECONOMIC LEVEL OF COMMUNITY, EDUCATIONAL-CULTURAL BACKGROUND, AND LANGUAGE BACKGROUND. AN EXAMPLE OF THE QUESTIONNAIRE, TABLES, AND A GLOSSARY ARE INCLUDED. (LS)

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a research report

A STATE WIDE STUDY OF READING PROGRAMS

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A State-Wide Study of READING PROGRAMS

A Research Report

Division of Instructional Services

MARION L. McGUIRE, *Reading Consultant*

State Department of Education

Instructor, University of Rhode Island

March, 1967

Elementary and Secondary Education Act, Title V, Section 503, P.L. 89-10

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FOREWORD

This research project has been conducted as an aid to both State and local agencies in their efforts to improve reading instruction. It is reported in narrative style in the hope that it will invite reading and discussion in every elementary school. A special effort has been made to protect the identity and integrity of each school participating in the study by withholding scores on categories in which six or fewer schools responded.

Through publication of this study, it is hoped that the State Department of Education has provided a much-needed basis for constructive planning of good reading programs.

WILLIAM P. ROBINSON, JR.
Commissioner of Education

ADVISORY COMMITTEE

The Advisory Committee originally consisted of seventeen members. Fifteen of the members were able to remain with this program acting as consultants to the local schools. They were:

Miss Kathleen Ball, *Reading Consultant, Warwick*
Miss Alice Birkett, *Reading Consultant, Portsmouth*
Miss Anne Bourke, *Orientation Teacher, Providence*
Miss Letitia Burnley, *Reading Consultant, Foster-Gloucester*
Miss Kathleen Devaney, *Reading Consultant, Cranston*
Miss Gertrude Donovan, *Elementary Supervisor, Woonsocket*
Mr. Vincent Gallucci, *Principal, North Kingstown*
Dr. Sarah Kerr, *Principal and School Psychologist, Central Falls*
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Mr. Richard Mottola, *Principal, Bristol*
Miss Elizabeth Riley, *Elementary Supervisor, South Kingstown*
Mrs. Janet Schaus, *Language Arts Consultant, Jamestown*
Mrs. Helen Silverburg, *Librarian, Coventry*
Miss Florence Stubbs, *Reading Coordinator, Burrillville*

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Many people in the public, parochial, and private schools in Rhode Island cooperated in an effort to supply data which might be significant to educators at all levels throughout the State. Grateful acknowledgement for their cooperation is made to Monsignor Arthur Geoghegan, Superintendent of Catholic Schools, Diocese of Providence; Mr. Lawrence Miller, President of the Association of Independent Schools; members of the Advisory Committee; principals and teachers in participating schools; and all others who contributed time, effort, and encouragement in amassing the tremendous amount of data encompassed by this study.

Computer programming and services were contracted to Educational Services Center, Rhode Island College. Dr. John A. Finger, Jr., Director, is recognized for his cooperation and sustained interest in this study.

Mr. Richard Dowd, Chief of Educational Assessment for Rhode Island, offered invaluable assistance with the cover design.

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INTRODUCTION

Background

In September, 1965, when a Reading Consultant was first employed by the State Department of Education, activities in the field of reading were modest in proportion to the needs of the State. As a first step in building an adequate program, it seemed imperative to assess the status of reading instruction. Two overall objectives were established: 1) to indicate ways in which the State Department of Education might be of assistance to the schools, and 2) to provide data which might serve as a structure within which research projects and trial programs could be conceived and executed at the local level.

The assessment began with a survey of the resources already available in the State Department which were related to the objectives. Many kinds of information were found, the most promising of which were records of the Rhode Island State Testing Program.

One of the recognized strengths of a standardized test is its usefulness in comparing groups. Why not find out what policies, what programs, what materials, what approaches, what staff members, what environmental factors affect primary-grade reading instruction in each school and use fourth-grade State-Testing-Program scores for comparing the effectiveness of each of these treatments? The idea seemed worth pursuing.

On November 10, 1965, a proposal for a preliminary planning grant was prepared according to the regulations governing the Elementary and Secondary Education Act of 1965, Title V, Section 503, P.L. 89-10. The proposal was funded early in January. A questionnaire was then developed which would yield the information indicated in the proposal as being important for planning purposes. Shortly thereafter, an advisory committee was recruited and the necessary computer services contracted with the Educational Services Center, Rhode Island College. The study had begun to evolve and the objectives seemed attainable.

Advisory Committee

The Advisory Committee was selected to be representative of all geographic areas of the State and many interests in reading. It met three times. Initially, it met to discuss the questionnaire, its relevance

to the stated objectives, and problems which might arise in responding to it. Members then acted as resource persons throughout the State, answering questions and encouraging returns. When the first rush of responses was in, the committee met again for a preliminary report and a survey of schools possibly needing assistance in making returns. The third meeting consisted of a discussion of the results of the study and their implications for reading instruction in Rhode Island.

The high rate of return of the questionnaires is credited to the assistance given by the Advisory Committee.

The Rhode Island State Testing Program

An important aspect of the study is the availability of scores from the State Testing Program which is conducted each year in October by the State Department of Education through a contractual arrangement with the Educational Services Center, Rhode Island College. The California Mental Maturity Test, the California Elementary Achievement Test battery, and the Scholastic Test Service Work-Study Skills Test are given to all pupils in grades four and six.

In addition to computing raw scores and percentile ranks for the achievement tests, a deviation-from-regression score is computed. In this operation, each set of achievement test scores is regressed on observed intelligence and the line of regression determined. At this point a score may be represented as a deviation from the regression line. The deviation-from-regression score removes the effect of intelligence on achievement insofar as this is possible. A plus-deviation score indicates performance higher than would be predicted, and a minus-deviation score indicates performance lower than would be predicted from a knowledge of the intelligence score. Both raw scores and deviation-from-regression scores are computed for all achievement tests for each pupil, each class, and each system. Selected school scores for the 1965 fourth-grade class were computed especially for this study.

The Questionnaire

A questionnaire was developed which would yield three sets of data. Part I requested information about the primary-grade reading program of the 1965-1966 fourth-grade class. Part II was a survey of current practices in the elementary-school reading program. Part III assessed the educational and professional needs of teachers who teach reading at the elementary level.

Part I was designed as an aid in identifying program-effectiveness criteria for primary-grade reading. Data from Part I was used in conjunction with State-Testing-Program scores for fourth graders as an assessment of the twenty treatments which were surveyed through the use of the questionnaire. The purpose of this assessment was to find out if there were any categories of treatments such as the type of kindergarten experience, the extent of readiness activities, or the basic reading approach which were associated with achievement in reading comprehension.

Part II indicates present practices in elementary-school reading programs. Certain comparisons can be made with Part I to ascertain trends in policies and practices.

All information in Part III relative to the professional preparation of teachers who teach reading in the two hundred eighty-five participating schools will be withheld. The only information to be reported is the tabulation of what principals and teachers in these schools feel to be their greatest needs in the development of good reading programs.

Survey techniques dependent upon questionnaires are usually subject to many ills. An effort was made to control the usual problems by seeking the advice and assistance of an advisory committee. A thorough discussion of the questions and the response categories was conducted in an effort to reduce the possibility that a respondent might find no suitable choice or that a question might be misinterpreted. The committee members then acted as consultants, each assigned to one or more school systems. Questionnaires were distributed in March, 1966 to all public, parochial, and private schools in the State which housed a fourth-grade class. The name of the consultant was sent along with the questionnaire and instructions to each school principal. When a month had elapsed, consultants contacted schools from which there had been no response, offering assistance. As a result, by June a high rate of return had been attained, which is not usually the case with questionnaires.

PART I

THE IDENTIFICATION OF PROGRAM-EFFECTIVENESS CRITERIA FOR PRIMARY-GRADE READING

Procedure

The procedure involved the following steps:

1. Application for an E.S.E.A. Title V grant
2. Development of the survey instrument
3. Recruitment of the Advisory Committee
4. Distribution of the questionnaire
5. Contractual arrangement for computer services
6. Collection of data
7. Analysis of variance of test scores by treatment
8. Report of results

Test scores selected for analysis included reading comprehension, the reading comprehension deviation-from-regression score, vocabulary, spelling, and language mechanics. The rationale behind this particular selection of test scores was to establish a framework within which certain scores could be compared to provide some control over hidden variables which are not otherwise controllable in a study of treatments already completed and therefore not subject to random assignment. Using both reading comprehension raw scores and deviation scores, intelligence is controlled and the relationship between intelligence and the treatment indicated. For hidden variables other than intelligence, a comparison of the rank order of all raw scores provides a good measure of control in that it signals the presence of a factor affecting all language skills, as will be indicated in a discussion of the results of the study.

Using schools as sample units, State-Testing-Program scores were distributed by category for each treatment in Part I of the questionnaire. An analysis of variance was computed and an F test performed for each treatment surveyed. Differences which exceeded the .01 or .05 level of significance are reported. (See Glossary for definition of terms.) When the probability exists that differences could have occurred six or more times in a hundred by chance, they are considered to be not significant and are so indicated. Results are reported in tables in the Appendix and discussed in the text.

Discussion of Results

This project is an assessment, a status study, and not an experiment. One outcome will be to indicate whether any of the treatments surveyed in this study bear a relationship to reading achievement. Another outcome will be to show what specific categories within the treatments have produced better-than-average achievement when intelligence is equated. In so doing, the study will provide a foundation for future research and program development. It should eliminate many costly local efforts to improve reading programs by experimenting with treatments which have revealed no significant differences with 12,695 pupils over a three-year period. Time, effort, and money can be channeled into treatments that hold more promise or that need more trial.

The major thrust of the study was to identify program-effectiveness criteria which have contributed to the development of reading comprehension, but several things can be noted from the tables. For example, it is possible to appraise the effect that certain treatments have had on vocabulary or other language skills, such as the effect of a well-stocked library on vocabulary or a phonics approach on spelling achievement.

The following discussion is based on the results reported in the tables in the Appendix.

Does the type of kindergarten experience affect primary-grade reading achievement? (Treatment #1) No. Differences in raw scores were cancelled out when scores were equated for intelligence. However, the trend in scores seems to favor kindergartens that emphasize informal readiness activities. Schools that gave formal reading instruction in the kindergarten (use of preprimers, for example, with the majority of the class) scored lowest. This trend could have occurred by chance.

Is entrance age a contributing factor in reading achievement? The results do not prove this. The results on treatments 2 and 3 are too erratic. The highest scores were achieved by groups entering school in the youngest age category, but a study of the data seems to indicate that other factors probably affect the scores more than entrance age. One evidence of this is that the rank order of scores does not follow a time sequence. Another is the consistence of the rank order in the raw-score columns. Perhaps the important observation is that the youngest group to enter school did as well if not better than other age groups.

What should be the extent of readiness activities in Grade 1? (Treatment #4) On this measure, differences within the groups are greater than the differences between the groups. The rank order of scores shows a definite trend and favors extended readiness activities, but the differences could have occurred by chance.

Does the basic reading approach in Grade 1 affect reading achievement as measured early in Grade 4? (Treatment #5) Yes. The results indicate that there are very significant differences in these categories when scores are equated for intelligence. The typical basal reader look-and-say approach with gradual phonics produced the highest achievement. The language arts approach also produced results above prediction. Scores for groups using the intensive phonic or experience approach fell well below prediction. It will be noted, however, that the experience approach has been tried in only nine schools and undoubtedly needs further trial. The linguistic approach also needs further trial as it had been used in only two schools at the time this data was collected.

Does the teacher-pupil relationship as evidenced by grouping practices affect reading achievement? (Treatments 6 and 7) It was found that two hundred seventy-eight of the two hundred eighty-five schools participating in the study group by achievement. Other categories were too low in frequency to report. A decision on this issue awaits further trial.

Is reading achievement related to the way the school is organized for reading instruction? (Treatment #8) Yes, it would seem so. Statistical procedures show very significant differences. However, a little caution is needed in interpreting these results. Two of the categories are low in frequency (only eight schools in each) which precludes wide variety among the hidden variables. On the other hand, within-grade grouping and the self-contained classroom group *t* test to be significantly different in favor of the former, and these groups seem large enough to provide a basis for assessment.

But then, the trend in rank order of scores on all of the achievement tests invites speculation. Do certain organizations create the need for more diagnosis in the teaching-learning situation, more sharing between and among teachers, more careful attention to children's learning patterns, levels, and rates? Is it possible that a treatment can be a medium for teacher improvement? Is it possible that children who have learned

to read better will do better in other subjects? Just observing the scores in the columns of control variables in the tables leaves the issue still fogged and many questions unanswered.

What could account for the high deviation score of +1.65, the highest of any category containing more than ten schools? A comparison of the thirty-two schools using within-grade grouping provided a very interesting segment of the study. The results are indicative of the need for controls for this type of study, as the following data reveals:

1. Thirty-one of the schools used supplementary readers along with the basal.
2. Thirty-one of the schools had classes which averaged thirty-five or less. Classes in fifteen of these schools averaged thirty or less.
3. Twenty-eight schools had readiness programs which were extended until an objective screening was passed.
4. Twenty-seven of the schools used the basal reader look-and-say approach with gradual phonics.
5. Twenty-six of the schools used either Houghton Mifflin or Harper & Row as the basal reader.
6. Twenty-five of the schools had consultant assistance for the teacher on an "as needed" basis.
7. Twenty-four of the schools used teacher-made mimeographed materials as one of the most frequently used supplementary materials.

All of these categories produced plus-deviation scores in this study. It is obvious that this category of within-grade grouping has brought together a number of schools that have moved into a success syndrome.

Contrary to the general achievement level of the group, data also revealed that schools which combined within-grade grouping with the intensive phonic approach accounted for most of the low scores in this category and averaged −1.23 on deviation scores.

This treatment, moreso than any other one, points out the need for looking at many facets of the reading program. It seems that no one factor separates the good from the bad.

Does the teacher's access to a supply of basal readers affect pupil performance? (Treatment #9) Yes, although here again the rank order of scores leaves some questions unanswered. Tabled results show that

using deviation scores to equate on intelligence, differences are significant at the .05 level and favor having a number of sets of readers available.

Schools having only one set of basal readers available scored exceptionally low on all tests. A factor such as per pupil expenditure could be interacting with this treatment. Further study seems important.

Does it make a difference which basal reader is selected to be used predominantly for basic reading instruction? (Treatment #10) Data seems to support a "yes" on this question. Test results on equated scores show that schools using predominantly the Houghton Mifflin or Harper & Row series exceeded prediction and a *t* test of the mean deviation scores of these two groups showed no significant difference between them. Any observable difference in scores could have occurred by chance.

Further study of this question seems warranted. An effort should be made to identify the specific components of the basal reader program contributing to differences. Could it be the sequence of skills, introduction of phonic elements, suggested comprehension checks, diagnostic aids, differentiated activities for groups of varying abilities, vocabulary control in presentation and absorption? There are innumerable considerations here because of the variety of activities generally associated with the basal reader approach.

Then, again, there are innumerable possibilities that other variables are contributing to outcomes evidenced in the tables. The scope of such a study necessitates its deferment until a later date.

What supplementary materials have a positive effect on reading achievement? (Treatment #11) Differences in scores favor a complete phonics program and teacher-made mimeographed materials. The question may be raised here about the distinction between the complete phonics program as a supplementary activity on the one hand and the intensive phonic approach or the use of phonics workbooks, both of which are shown to have been related to low achievement, on the other hand. In attempting a response to such a question, one is really limited to a clarification of the issue in a study such as this. In the first place, phonics as a supplementary activity is usually added to a program

which has comprehension as its major goal; whereas, as a basic approach, identification of the word is a goal which precedes the thinking through of the sentence. The psychology of learning has something to offer on the relationship of initial emphasis to final outcome.

A second distinction may be made between the use of workbooks alone and the use of a complete phonics program as a supplementary activity. Phonics has been shown in many studies to be an important aid in word identification, and there is nothing inherently wrong in the use of phonics workbooks. Supposedly, it is the way they are used that leads to results such as those in the tables. Phonics is, first of all, an aural-oral activity. Auditory perception of the phonic element must precede any written decoding or encoding process. The manual accompanying a complete phonics program gives directions for this. Games are suggested which further strengthen auditory discriminations. On the other hand, a workbook without an accompanying guidebook lends itself to assignment as seatwork and thus becomes a visual rather than an auditory-visual activity.

It is proposed that distinctions can be made among the phonics activities as discussed and that common usage of these different materials may have some bearing on the tabled results. However, the category for complete phonics programs includes only seven schools and may need further study before the question raised earlier can be answered.

Another category under treatment #11 that invites interesting speculation is that of teacher-made mimeographed materials. This is the second largest category including sixty-eight schools. In a statistical analysis of mean scores, the group of schools using teacher-made mimeographed materials predominantly is shown to be significantly different from the group using phonics workbooks at the .01 level of confidence, and just misses the .05 level when compared with schools using a skills supplement. Does this seem to indicate that the teacher is the best judge of the children's needs for supplementary practice materials?

Do results show that schools which have consultant assistance for the teachers do better than schools which do not have such help? (Treatment #12) The results of statistical analysis just miss significance at the .05 level. The schools which have the assistance of a consultant on an "as needed" basis form the only group which exceeded expectations, but these differences could have occurred by chance.

The control variables point out either that variables other than consultant assistance enter into differences observed in the tables or that consultant assistance affects language skills other than reading. Such a distinction cannot be made from available data. Further study might be directed toward the differences which result from working with a consultant with a basic reading emphasis as compared to one with a language arts emphasis, or differences resulting from specified amounts of consultant contact, the quality of the contact, and the training of the consultant. Evidence here is not conclusive.

When a child is having difficulty learning to read, does it make a difference who helps him and how often help is given? (Treatment #13) Yes. There are significant differences among the groups in this treatment. When intelligence is held constant by using deviation scores, schools providing a reading specialist to work with these youngsters are shown to score the highest.

The question may be raised as to why schools would score low if help was given regularly by the classroom teacher during recess, or before or after school. The data collected gives no indication of how children were selected for help or what kind of help was given. The possibility exists, however, that when the classroom teacher keeps the child in school for an extra period of time, it is either to give him more time to do the work already assigned or to give him more of the same kind of work. The results may indicate that for a child to have to finish something that was too difficult to do in the allotted time, or to receive more instruction at a level frustrating to the child impedes rather than encourages achievement. It is also possible that the denial of playtime builds up resentments as well as reserves of pent-up energy. When someone other than the classroom teacher helps a child during the regular school day, there may be a greater probability that the instruction is geared to his individual needs rather than to a classroom or group standard.

Clarification of the kinds of help a classroom teacher might give profitably should be the target of a further study.

Does the presence of a central library in a school affect reading achievement? (Treatment #14) Differences among groups favor schools which have had a central library for more than three years; and, although differences in comprehension scores are not significant, those in vocabulary are significant at the .05 level. The scores for spelling

and language mechanics are ranked in such a way, however, that caution must be exercised in interpreting the results of this treatment, as another variable may be responsible for some of the differences observed.

Does the number of books per child in the central library affect reading achievement? (Treatment #15) There are differences among groups on all of the tests favoring schools with well-stocked libraries, but these differences fall slightly short of significance when intelligence is considered. As recorded in the tables, however, schools having eight or more books per child in the library achieved high plus-deviation scores. The reason these scores do not quite reach significance in difference from other categories is because of the small number of schools having that many books, and number is a factor in the statistical test.

As in the preceding treatment, there is an indication here that some variable is affecting all of the achievement scores within each group. The rank order of scores is fairly consistent. It may or may not be the treatment under study. Data available is not sufficient to make this determination.

Do classroom libraries contribute to reading achievement? (Treatment #16) There are no significant differences among the groups for this treatment. The classification itself was deficient in that no attempt was made to distinguish classroom libraries by number and quality of books. As the categories stand now, there are greater differences in scores within each group than there are between groups.

Is class size related to achievement in reading? (Treatment #17) Yes. There are significant differences among the average scores for all of the tests which are shown to be even greater when intelligence is held constant. Average achievement exceeded expectation for classes of thirty-five or less with the highest score made by classes of twenty or less. When classes exceeded thirty-five, unusually low deviation scores resulted. In other words, these groups performed far below the level expected for their intelligence.

Does the socio-economic level of the community affect reading achievement? (Treatment #18) A direct relationship is noted between the socio-economic level of the community and achievement on all tests. For readers who are interested in statistics, a look at the value of the *F* ratio for this treatment and the next one will indicate the tremendous effects of money, social class, and cultural environment on

educational achievement. It is also important to notice that when intelligence is held constant, all significant differences are removed. The intelligence-test instrument is seen to have a socio-cultural bias.

The implications are that socio-economic level and observed intelligence level are directly related, and that the former has a greater effect on achievement and the functioning level of intelligence as it is group tested than the educational process. A way is yet to be found to equalize educational opportunity for children from all strata of society.

Does the educational-cultural background of families in the community affect reading achievement? (Treatment #19) Differences among groups on raw-score measures are even greater than those in the previous treatment, possibly because the schools are distributed among three groups rather than five, but holding intelligence constant removed their significance. Once again, a child's level of attainment is seen to be determined to a great extent by the background from which he comes.

Does hearing or speaking a foreign language in the home affect reading achievement? (Treatment #20) When intelligence is held constant, differences are not significant. As might be expected, the highest scores were achieved in schools where the majority of children neither heard nor spoke another language. It is interesting to note, however, that when another language was spoken in the home, comprehension seemed to be improved if the child could speak it. But, these differences could have occurred by chance.

Summary of Results

Of the twenty treatments surveyed through the use of the questionnaire and analyzed through the use of State-Testing-Program scores, only eight showed significant differences among mean deviation-from-regression scores for reading comprehension regressed on intelligence. They include: Grade 1 entrance age, the basic reading approach used in Grade 1, the school organization for reading, the materials used for basic reading instruction, the predominantly used basal reader, the principal supplementary reading materials, the source and frequency of individual help given to pupils, and average class size. Two additional categories came close to reaching the .05 level of significance (well beyond the .1 level). They are: consultant assistance for the teacher in planning and the number of books per child in the central library.

The following statements can be made on the basis of the results of this study:

1. Children who entered school in the earliest age group did as well, if not better, than children in older age groups.
2. The traditional basal reader look-and-say approach with gradual phonics produced significantly higher achievement than the intensive phonic or experience approaches. The language arts approach also exceeded prediction.
3. Schools that organized for reading on the basis of within-grade grouping did significantly better than those with self-contained classrooms. Further analysis of the within-grade grouping category, however, revealed that most of the schools fell into the same category on several other treatments which produced plus-deviation scores in this study. It points out the need for looking at many facets of the reading program.
4. Using a multiple basal approach or a basal reader with supplements was found to be superior to the use of only one basal reader. Schools having only one reader available did poorly when compared with a level expected for schools having the same average intelligence score.
5. Schools that used Houghton Mifflin or Harper & Row basal readers as the core of their reading program exceeded an expected level of achievement.
6. A complete phonics program and teacher-made mimeographed materials were the supplementary materials that showed the closest relationship to achievement in reading comprehension.
7. Schools that provide a reading specialist to work with students that need help scored higher than schools providing other kinds of help or no help.
8. Achievement seems to be related to class size with classes of less than twenty scoring the highest and those of thirty-six or more scoring low when equated on intelligence.
9. Scores for schools having consultant assistance for the teachers in planning on an "as needed" basis exceeded scores for schools having other or no consultant arrangements.
10. Schools having eight or more books per child in the central library scored higher than schools having fewer library books.

Implications of This Study

The results of this study seem to indicate that many factors must be considered in the development of a good reading program and that most of these revolve around the capacity for flexibility and differentiation that exists both in the classroom and in the total school environment. Small classes, many books, supplementary materials designed by the teacher, patterns of organization that cross classroom boundary lines, a consultant to help out when a problem arises, a reading specialist to help the child outside the classroom when the regular program doesn't seem to be clicking for him, a wide selection of library books—these spell out some of the essentials of a flexible, differentiated program.

The problem of phonics is also brought into focus. The results seem to indicate that it is not a question of whether or not phonics should be taught, but the place of phonics in the program and how it should be taught. Using phonics intensively as a basic approach produced classes that could spell rather well but that could not comprehend well what they read. The use of phonics workbooks alone, outside the context of a complete phonics program, also seemed to be a questionable practice. Evidence from this study supports the use of a complete phonics program as a supplement to the basal program.

It must be pointed out that it is not within the province of this study to prescribe for the future. It is a statement of the outcomes of common policies and practices under normal classroom conditions. In other words, since it reports on the past, no Hawthorne effect was possible. It is the story of the achievement of 12,695 fourth-grade pupils in two hundred eighty-five schools — public, parochial, and private. It may have different implications for each of these schools in terms of local goals and needs, and it will have served a worthy purpose if it invites discussion and a questioning attitude about the many ways that can and must be found to differentiate instruction according to the individual needs of children.

PART II

CURRENT PRACTICES AFFECTING THE ELEMENTARY-SCHOOL READING PROGRAM

The purpose of this part of the study was to determine some of the practices currently associated with elementary-school reading programs. It is also possible to note trends by comparison with Part I. In Table II in the Appendix will be found a distribution of the responses made by the two hundred ninety-four schools responding to this part of the study for all twenty-one practices surveyed in Part II of the questionnaire. A few summary statements follow:

1. There are fewer kindergartens in the State than there were five years ago.
2. Entrance-age requirements have remained the same in most communities.
3. Fewer schools are offering programs of extended readiness activities and objective screening procedures before initiating reading instruction.
4. There is a sharp decline in the number of schools using the tra ditional basal reader look-and-say approach with gradual phonics, while the greatest increase appears in the category of intensive phonics.
5. More schools are abandoning classroom boundaries in search of better grouping procedures.
6. Several schools have replaced the traditional basal reader with workbook-type programs, trade books, or kits as the principal type of material used for basic reading instruction.
7. The regular primary-grade reading program is supplemented with phonics in more than half of the schools.
8. Nearly half of the schools have a regularly scheduled study-skills program to improve reading in content subjects.
9. SRA kits are used in at least some grades in sixty-three percent of the schools that responded.
10. Very few schools use Controlled Readers or tachistoscopic equipment.

11. Tapes and records are used for developing listening skills in many schools.
12. More than one hundred schools have found a use for programmed materials.
13. Nearly forty percent of the schools tried new materials and/or a new method in one or more classrooms during the 1965-1966 school year. The most prevalent types of trial programs were: the use of a new basal series of readers; a new approach to reading such as intensive phonic instead of whole word with gradual phonics; and the use of three different basal series, one for each of the three ability groupings – high, average, and low.

PART III

EDUCATIONAL AND PROFESSIONAL NEEDS IN THE ELEMENTARY-SCHOOL READING PROGRAM

The opinions of elementary-school principals and teachers as to the greatest needs of the school in the area of reading differed very little. (See Table III in the Appendix.) Although the question to each group was open-ended, both groups responded within easily defined categories. However, principals mentioned more frequently a need for specialized personnel such as a reading consultant or remedial reading teacher, diverse materials to meet individual needs, machines and kits, smaller classes, and better library facilities. Teachers, on the other hand, pointed out more emphatically the need for more education – pre-service, in-service, and graduate courses -- with special emphasis on methods and techniques for individualizing the program. Frequently mentioned, also, were supplementary books and materials, specific skill materials, a new approach or different organization for reading, and more time to teach and/or to plan. Diagnostic testing was also mentioned as an aid in helping teachers to determine how to individualize the program.

This part of the report is felt to be significant in that it reveals the awareness of educators at the local level to the problems of helping every child to reach his potential. The items listed represent ways in which a teacher could extend himself – knowledge, materials, resources, time – to help more children; and the needs, as stated, are shown to be rather widespread. For example, although reading specialists are already employed by many school systems, forty-seven principals and twenty-eight teacher groups expressed a need for a reading consultant, and ninety-six principals and eighty-one teacher groups stated a need for a remedial reading teacher. Similar prevalence is found in other areas such as the need for courses and supplementary books and materials. Whatever their needs, teachers may gather strength in the knowledge that they do not stand alone.

NOTES

APPENDICES

PART I OF QUESTIONNAIRE

HISTORY OF PRESENT FOURTH-GRADE PUPILS

In the box at the right, record the code number of the answer which most accurately describes a learning condition of your present fourth-grade class. *When no answer is exact, choose the closest.*

1. Your present 4th grade class was kindergarten age during the '61-'62 school year. Therefore, choose the answer which describes the kindergarten situation you had in the '61-'62 school year.

   Code Number

   1. No kindergarten in '61-'62 ☐ 25
   2. Half-day kindergarten—informal readiness activities
   3. Full-day kindergarten—informal readiness activities
   4. Half-day kindergarten—formal reading instruction (use of preprimers, for example, with majority of class)
   5. Full-day kindergarten—formal reading instruction
   6. Half-day—Montessori
   7. Full-day—Montessori

2. Kindergarten entrance age in '61-'62 school year.

   1. No kindergarten in '61-'62 ☐ 26
   2. Five years old by Sept. 1st
   3. Five years old by Oct. 1st
   4. Five years old by Nov. 1st
   5. Five years old by Dec. 1st
   6. Five years old by Jan. 1st
   7. Five years old by Feb. 1st
   8. Five years old by March 1st or later

3. Entrance age in grade 1 in '62-'63 school year

   1. Six years old by Sept. 1st ☐ 27
   2. Six years old by Oct. 1st
   3. Six years old by Nov. 1st
   4. Six years old by Dec. 1st
   5. Six years old by Jan. 1st
   6. Six years old by Feb. 1st
   7. Six years old by Mar. 1st or later

4. Grade 1 readiness activities in '62-'63 school year.

   1. No readiness activities
   2. A maximum of 6-8 weeks of readiness for some
   3. 6-8 weeks of readiness for everyone
   4. Readiness activities were provided for an indefinite period for each child until he passed an objective readiness screening and seemed assured of success in beginning reading.

   ☐ 28

5. Basic reading approach used in '62-'63 school year—grade 1

   1. Traditional look-and-say with gradual phonics
   2. Intensive phonics approach
   3. Linguistics
   4. Language Arts (correlated listening, speaking, reading and writing program)
   5. Experience approach (child dictates story to be read)

   ☐ 29

6. Teacher-pupil relationship for *basic* reading instruction in grade 1, '62-'63 school year.

   1. Whole class taught together
   2. Grouping by achievement
   3. One-to-one (individualized)

   ☐ 30

7. Teacher-pupil relationship for *basic* reading instruction in grades 2 and 3, '63-'65.

   1. Whole class taught together
   2. Grouping by achievement
   3. One-to-one (individualized)

   ☐ 31

8. Organization for reading—grades 1 to 3, '62-'65

   1. Self-contained classroom (children stayed in classroom for reading instruction)
   2. Departmentalized (children went to reading teacher for reading instruction)
   3. Joplin-type (children were grouped across grade levels—went to classroom where their level was being taught)
   4. Within-grade grouping (example: first grade teachers exchanged some pupils during reading period for better grouping)
   5. Non-graded

   ☐ 32

9. Indicate the principal type of materials used from '62-'65 for *basic* instruction for present fourth-grade class.

1. Basal readers—1 series adopted, no other available
2. Basal with supplements—all students use basal but supplementary readers used as needed
3. Co-basal readers—2 series adopted and used interchangeably or to supplement one another
4. Multiple basal—teacher's choice
5. Workbook-type program (Economy Co., for example) used for basic instruction
6. Teacher-produced materials
7. Trade books
8. Programmed materials

□ 33

10. If you use a basal reader, which of these series was used predominantly for the present fourth-grade class?

1. Allyn and Bacon
2. American Book Company
3. Ginn and Company
4. Harper & Row (or Row Peterson)
5. D. C. Heath
6. Houghton Mifflin
7. Laidlaw
8. Lippincott
9. Lyons and Carnaham
10. Scott, Foresman and Co.
11. Winston
12. Other – Specify here: .....

□ 34

11. Indicate the type of supplementary reading materials used most frequently in grades 1 to 3 by the present fourth-grade class.

1. Auto-instructional materials such as SRA lab
2. Programmed material
3. Phonics workbooks
4. A-V aids (slides, filmstrips, etc.)
5. Skills supplement (Skilltext workbooks, RD Skill Builders, etc.)
6. Commercial mimeographed materials
7. Teacher-made mimeographed materials
8. Supplementary phonics program (such as Words in Color or Phono Visual)

□ 35

12. Did the teachers who have taught the present fourth-grade class in grades 1 to 3 have the assistance of reading or language arts consultant in organizing or planning reading activities in the classroom?

1. Not at all
2. Very seldom
3. As the need was felt
4. Extensive consultation

□ 36

13. Did the pupils in the present fourth-grade class have individual help in reading as needed other than from the classroom teacher during regular class time?

1. No extra help
2. Very little extra help
3. Help was given regularly during recess, before or after school, or during free periods by the classroom teacher
4. Help was given regularly by a helping teacher or other certified person in the school system
5. Help was given by a reading specialist occasionally
6. Help was given by a reading specialist on a regularly scheduled basis

□ 37

14. For how long was there an organized central library prior to June 1, 1965?

1. No central library
2. One year
3. Two years
4. Three years
5. More than three years

□ 38

15. Approximate number of books per child in the central library prior to June 1, 1965?

1. No central library
2. 2 or 3 books per child
3. 4 or 5 books per child
4. 6 or 7 books per child
5. 8 or 9 books per child
6. 10 or more books per child

□ 39

16. Were there classroom libraries in the primary classrooms attended by the present fourth grade?

1. No classroom libraries
2. Very few classroom libraries
3. Libraries in about half of the classrooms
4. Libraries in most of the classrooms
5. Libraries in all of the primary classrooms

☐ 40

17. Average class size for grades 1 through 3 from '62-'65.

1. Less than 20
2. 20-25
3. 26-30
4. 31-35
5. 36-40
6. 41-45
7. 46-50
8. More than 50

☐ 41

18. Socio-economic level of school community.

1. High income—above $10,000
2. Moderate to high income—$7,000-$10,000
3. Moderate income—$5,000-$7,000
4. Low to moderate income—$4,000-$5,000
5. Low income—Under $4,000

☐ 42

19. Educational—cultural family background.

1. Well educated
2. Moderately educated
3. Poorly educated

☐ 43

20. Language background.

1. At home the child speaks another language
2. At home the child hears but does not speak another language
3. At home the child neither hears nor speaks another language

☐ 44

TABLE I

RAW SCORE MEASURES, RANK ORDER, AND ANALYSIS OF VARIANCE

OF EXPERIMENTAL AND CONTROL VARIABLES BY TREATMENT

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev[a]	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
1. Kindergarten Experience												
No Kindergarten	140	$\bar{X}$[b]	37.33	1	- .13	3	27.95	1	14.171	3	55.64	2
		s[c]	3.86		2.54		3.15		1.53		5.83	
Half-day, informal	101	$\bar{X}$	36.85	3	.29	1	27.31	3	14.29	1	54.60	4
		s	5.01		2.83		4.10		1.90		8.04	
Full-day, informal	11	$\bar{X}$	37.22	2	.18	2	27.36	2	14.170	4	57.05	1
		s	2.15		1.45		3.60		.73		4.55	
Half-day, formal	26	$\bar{X}$	36.59	4	- .41	4	26.88	4	14.22	2	54.99	3
		s	5.29		2.52		3.92		2.32		8.32	
Means of small categories reported in random order to protect identity of schools (full-day formal, half-day and full-day Montessori)	1	$\bar{X}$	34.23		.18		27.66		10.66		49.05	
	1	$\bar{X}$	26.51		-2.08		21.72		11.35		44.03	
No response - 4	1	$\bar{X}$	53.15		4.57		37.46		20.11		72.66	
Analysis of variance		F[d] =	2.9206		1.0269		1.8617		2.8149		1.6814	
Sign. of between-column differences		p[e]	◄.01		N.S.[f]		N.S.		◄.01		N.S.	

a RC Dev - Reading Comprehension Deviation represents performance superior or inferior to the best prediction that could be made on the basis of a knowledge of intelligence.

b $\bar{X}$ - The mean or average raw score or deviation score of the schools in the category

c s - The standard deviation or the number of raw score points on either side of the mean which would include approximately two-thirds of the schools in the category

d F - The value of the F ratio in the analysis of variance

e p - The level of probability that that much difference could occur by chance

f N.S. - Not significant

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
2. Kindergarten Entrance Age												
No kindergarten	139	$\bar{X}$	37.34	3	- .13	4	27.96	3	14.17	3	55.64	2
		s	3.88		2.55		3.16		1.53		5.85	
Five yrs. by Sept. 1	35	$\bar{X}$	35.76	4	.31	2	26.51	4	14.08	4	53.69	3
		s	3.94		3.21		3.01		1.57		6.68	
Five yrs. by Oct. 1	18	$\bar{X}$	37.51	2	.09	3	28.03	2	14.73	2	53.35	4
		s	3.17		1.88		2.42		1.36		4.17	
Five yrs. by Nov. 1[a]	6											
Five yrs. by Dec. 1	32	$\bar{X}$	34.43	5	- .37	5	25.14	5	13.09	5	51.22	5
		s	5.41		2.78		4.45		1.91		8.03	
Five yrs. by Jan. 1	50	$\bar{X}$	38.89	1	.37	1	28.77	1	14.97	1	58.70	1
		s	5.55		2.56		4.38		2.21		8.64	
Other and no response - 5												
Analysis of variance		F=	3.4890		0.7119		3.7878		3.8910		4.1418	
Sign. of between-column differences		p	<.01		N.S.		<.01		<.01		<.01	

a Scores for categories containing six or fewer schools are not reported to prevent identification of school scores.

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables: ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Control Variables: Spell	Rank	Lang	Rank
3. Grade 1 Entrance Age												
Six yrs. by Sept. 1	47	X	36.33	4	.49	2	27.06	4	14.12	4	53.66	3
		s	3.78		2.85		3.00		1.54		6.22	
Six yrs. by Oct. 1	28	X	36.34	3	- .44	4	27.60	2	14.32	3	53.50	4
		s	4.17		2.07		2.97		1.59		5.10	
Six yrs. by Nov. 1	5											
Six yrs. by Dec. 1	52	X	35.71	5	- .75	5	25.86	5	13.56	5	52.38	5
		s	5.48		2.65		4.65		1.98		7.85	
Six yrs. by Jan. 1	140	X	37.84	2	.16	3	28.38	1	14.39	2	56.92	2
		s	4.17		2.54		3.32		1.72		6.71	
Six yrs. by Feb. 1	11	X	39.00	1	.78	1	27.50	3	14.93	1	58.45	1
		s	5.40		2.70		3.63		2.10		5.97	
No response	2	X	33.93		-3.75		27.70		12.57		53.52	
Analysis of variance		F=	2.4525		2.2034		3.7567		2.2591		4.1978	
Sign. of between-column differences		p	◄.05		◄.05		◄.01		◄.05		◄.01	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
4. Grade 1 Readiness Activities												
No readiness activities	19	X̄	36.93	3	- .77	4	27.632	3	13.90	4	54.60	4
		s	5.07		2.50		3.93		2.31		8.60	
Maximum of 6-8 weeks for some	68	X̄	37.43	1	- .26	3	28.30	1	14.51	1	55.77	1
		s	4.93		2.57		3.87		2.06		7.59	
6-8 weeks for everyone	88	X̄	36.75	4	- .05	2	27.11	4	13.96	3	54.68	3
		s	4.40		2.80		3.78		1.45		6.85	
Indefinite, until objective screening passed	108	X̄	37.17	2	.33	1	27.631	2	14.26	2	55.49	2
		s	4.25		2.48		3.31		1.70		6.38	
No response - 2												
Analysis of variance		F=	0.2147		0.8441		0.9039		0.9357		0.4982	
Sign. of between-column differences		p	N.S.		N.S.		N.S.		N.S.		N.S.	
5. Basic Reading Approach, Grade 1												
Look and say, gradual phonics	140	X̄	37.27	2	.40	1	27.83	1	14.16	3	55.10	2
		s	4.39		2.60		3.48		1.61		6.92	
Intensive phonic	53	X̄	36.70	3	-1.02	3	27.48	3	14.25	2	54.90	3
		s	4.72		2.34		3.89		2.02		7.31	
Linguistic	2											
Language arts	81	X̄	37.38	1	.09	2	27.73	2	14.31	1	56.15	1
		s	4.22		2.58		3.37		1.83		6.58	
Experience	9	X̄	33.69	4	-1.34	4	25.09	4	13.46	4	52.14	4
		s	6.28		2.69		5.23		2.13		9.20	
Analysis of variance		F=	1.5133		3.6812		1.8802		0.5421		0.8591	
Sign. of between-column differences		p	N.S.		<.01		N.S.		N.S.		N.S.	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables: ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Control Variables: Spell	Rank	Lang	Rank
6. Teacher-Pupil Relationship, Gr. 1												
Whole class together	6											
Grouping by achievement	278	X s	36.91 4.29		- .04 2.58		27.50 3.52		14.13 1.68		54.99 6.62	
Individualized	1											
Analysis of variance	Omitted - Only one category reportable											
7. Teacher-Pupil Relationship, Gr. 2-3												
Whole class together	6											
Grouping by achievement	278	X s	37.05 4.54		.03 2.62		27.58 3.68		14.18 1.77		55.16 7.05	
Individualized	1											
Analysis of variance	Omitted - Only one category reportable											
8. Organization for Reading												
Self-contained classroom	234	X s	36.86 4.47	3	- .24 2.62	3	27.33 3.65	3	14.15 1.79	3	54.79 6.96	3
Departmentalized	8	X s	39.42 3.34	1	1.55 2.64	2	28.87 3.47	2	15.55 1.19	1	58.77 5.59	1
Joplin-type	8	X s	34.89 2.95	4	- .72 1.30	4	25.84 2.60	4	12.81 1.26	4	53.81 4.08	4
Within-grade grouping	32	X s	38.87 4.89	2	1.65 2.00	1	29.65 3.25	1	14.67 1.63	2	58.51 7.10	2
Non-graded - 3												
Analysis of variance		F=	2.6221		4.9085		3.8608		3.2524		2.8904	
Sign. of between-column differences		p	<.05		<.01		<.01		<.05		<.05	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
9. Materials for Basic Instruction												
Only one basal reader	18	X̄	35.02	4	-1.72	4	27.57	3	13.33	4	53.23	4
		s	3.35		2.30		3.36		1.38		5.55	
Basal with supplements	217	X̄	37.27	2	.17	2	27.72	2	14.27	2	55.20	2
		s	4.81		2.65		3.82		1.86		7.30	
Co-basal	34	X̄	36.43	3	- .40	3	26.63	4	13.98	3	54.86	3
		s	3.29		2.10		2.90		1.39		5.46	
Multiple basal (teacher's choice)	13	X̄	38.38	1	.56	1	28.51	1	15.09	1	58.79	1
		s	3.29		2.86		2.94		1.27		6.31	
Other categories total 3												
Analysis of variance		F=	1.2120		2.3455		0.6829		1.7547		1.3297	
Sign. of between-column differences		p	N.S.		:.05		N.S.		N.S.		N.S.	
10. Predominantly Used Basal Reader												
American Book Company	9	X̄	36.25	4	- .27	4	28.08	1	14.27	3	54.76	4
		s	4.05		1.82		2.48		1.77		6.38	
Ginn	89	X̄	37.71	2	- .44	5	27.54	3	14.29	2	55.13	3
		s	4.52		2.38		3.83		1.76		6.78	
Harper & Row (Row, Peterson)	20	X̄	37.94	1	.36	2	27.41	5	14.52	1	56.37	1
		s	3.05		2.06		3.86		.99		5.10	
Houghton Mifflin	46	X̄	36.43	3	.69	1	27.55	2	13.80	5	55.50	2
		s	4.62		2.28		3.43		1.60		6.62	
Scott-Foresman	91	X̄	35.91	5	- .26	3	27.50	4	14.10	4	54.61	5
		s	4.07		2.83		3.34		1.74		6.78	
Small categories, multiple basal and no response - 25												
Analysis of variance		F=	3.6023		2.8022		2.2747		3.6924		3.0638	
Sign. of between-column differences		p	◄.01		◄.01		◄.05		◄.01		◄.01	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
11. Principal Supplementary Material Auto-instructional	23	X̄	37.61	3	- .16	4	27.49	4	14.27	4	54.88	4
		s	5.79		2.57		3.94		2.77		8.92	
Programed materials	9	X̄	34.33	7	-2.09	7	27.23	6	14.30	3	53.13	7
		s	4.12		1.59		4.16		1.39		4.52	
Phonics workbooks	88	X̄	36.59	5	- .44	5	27.01	7	13.92	6	54.69	6
		s	4.20		2.73		3.75		1.74		7.23	
Skills supplement	52	X̄	37.96	2	- .09	3	28.27	1	14.54	2	56.29	1
		s	5.27		2.65		3.90		1.84		8.08	
Commercial mimeos	21	X̄	35.56	6	- .78	6	27.27	5	13.60	7	54.77	5
		s	3.53		2.33		2.59		1.24		4.96	
Teacher-made mimeos	68	X̄	37.23	4	.78	2	27.95	3	14.16	5	55.11	3
		s	4.21		2.09		3.70		1.47		5.99	
Complete phonics program (Phonovisual, words in Color, etc.)	7	X̄	38.76	1	2.57	1	28.23	2	14.70	1	56.26	2
		s	3.12		3.62		2.26		1.63		5.27	
Other and no response	17											
Analysis of variance		F=	1.2791		3.0708		0.6550		1.4017		0.5051	
		p	N.S.		≤.01		N.S.		N.S.		N.S.	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
12. Consultant Assistance (Planning)												
Not at all	135	X̄	36.72	3	- .09	2	27.24	4	14.13	3	55.03	3
		s	4.28		2.68		3.52		1.81		6.82	
Very little	25	X̄	35.58	4	-1.34	4	27.26	3	13.70	4	52.69	4
		s	4.87		2.42		3.91		1.53		6.71	
As needed	104	X̄	37.80	1	.40	1	28.18	1	14.40	1	56.14	1
		s	4.88		2.61		3.94		1.88		7.60	
Extensive consultation	17	X̄	37.25	2	- .21	3	27.39	2	14.18	2	55.30	2
No response - 4		s	2.08		1.63		1.74		.93		3.64	
Analysis of variance		F=	1.4936		2.1965		1.0531		0.8977		1.4868	
Sign. of between-column differences		p	N.S.		N.S.		N.S.		N.S.		N.S.	
13. Individual Help As Needed (Pupils)												
No extra help	78	X̄	36.83	4	.02	5	27.59	3	14.19	4	55.33	4
		s	4.83		2.78		3.70		1.80		7.39	
Very little help	58	X̄	36.77	5	.25	3	27.64	2	14.03	5	53.97	6
		s	4.01		2.38		3.48		1.64		6.75	
Regularly during recess, before or after school by classroom teacher	67	X̄	36.70	6	- .97	6	27.43	6	13.89	6	54.85	5
		s	4.53		2.55		3.77		1.66		6.31	
Regularly by helping teacher	23	X̄	37.49	3	.24	4	27.54	4	14.23	3	56.86	2
		s	4.98		2.14		4.32		2.01		8.68	
Occasionally by reading special.	12	X̄	40.05	1	.88	1	29.20	1	15.77	1	59.27	1
		s	6.53		3.50		4.26		2.51		10.37	
Regularly by reading specialist	47	X̄	37.50	2	.69	2	27.53	5	14.49	2	55.49	3
		s	3.20		2.23		2.97		1.44		4.65	
Analysis of variance		F=	1.3541		2.9869		0.4872		2.6984		1.4868	
Sign. of between-column differences		p	N.S.		<.05		N.S.		<.05		N.S.	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
14. Central Library												
No central library	156	X̄	36.57	3	- .15	3	27.29	3	14.06	4	54.62	3
		s	4.58		2.79		3.62		1.82		7.29	
One yr. prior to June, 1965	22	X̄	37.16	4	- .67	4	26.02	4	14.11	3	53.93	4
		s	5.02		2.63		4.21		2.01		5.78	
Two yrs. prior to June, 1965	19	X̄	38.30	1	.32	2	28.22	2	14.60	1	57.75	1
		s	5.20		2.75		4.83		1.62		7.96	
Three yrs. prior to June, 1965	6											
More than three yrs.	81	X̄	37.71	2	.46	1	28.39	1	14.43	2	56.37	2
		s	4.06		2.17		3.07		1.66		6.38	
No response - 1												
Analysis of variance		F=	1.0809		1.3577		2.3171		0.7121		1.4473	
Sign. of between-column differences		p	N.S.		N.S.		<.05		N.S.		N.S.	
15. Books per Child in Central Library												
No central library	146	X̄	36.41	5	- .23	5	27.25	5	14.04	5	54.48	6
		s	4.61		2.82		3.67		1.86		7.41	
Three or less	61	X̄	37.54	4	.48	3	27.58	4	14.13	4	55.32	4
		s	3.38		2.29		3.52		1.36		5.58	
Four or five	40	X̄	36.15	6	- .74	6	27.85	3	14.02	6	54.79	5
		s	3.35		2.19		3.11		1.35		5.42	
Six or seven	17	X̄	37.69	3	.32	4	27.22	6	14.50	3	56.34	3
		s	3.49		2.37		3.54		1.24		5.79	
Eight or nine	7	X̄	41.51	2	1.36	1	28.31	2	15.29	2	58.08	2
		s	5.16		1.63		1.73		2.52		5.99	
Ten or more	13	X̄	42.00	1	1.32	2	31.06	1	15.97	1	61.94	1
		s	6.86		2.40		4.64		2.49		10.04	
No response - 1												
Analysis of variance		F=	5.1348		2.0789		2.4426		3.1041		2.6582	
Sign. of between-column differences		p	<.01		N.S.		<.05		<.01		<.05	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
16. Classroom Libraries												
No classroom libraries	18	$\bar{X}$	35.71	4	- .88	4	26.99	4	14.12	2	55.88	1
		s	4.54		2.20		3.47		2.06		8.15	
Very few	27	$\bar{X}$	36.69	3	.050	2	27.25	3	13.94	4	53.87	4
		s	2.71		1.20		2.35		1.05		4.17	
About half of classrooms	5											
Most of classrooms	54	$\bar{X}$	36.92	2	.03	3	27.56	2	13.97	3	54.40	3
		s	4.47		2.41		3.44		1.70		6.32	
All primary classrooms	180	$\bar{X}$	37.32	1	.052	1	27.69	1	14.32	1	55.62	2
		s	4.76		2.79		3.90		1.86		7.39	
No response - 1												
Analysis of variance		F=	0.5652		0.5383		0.4657		0.5305		0.5308	
Sign. of between-column differences		p	N.S.		N.S.		N.S.		N.S.		N.S.	
17. Average Class Size												
Less than 20	13	$\bar{X}$	42.67	1	1.29	1	31.32	1	15.95	1	62.98	1
		s	8.29		3.75		5.00		3.77		11.52	
20 - 25	26	$\bar{X}$	36.93	4	.35	3	27.32	4	14.05	4	54.78	4
		s	4.27		1.72		2.67		1.65		6.14	
26 - 30	77	$\bar{X}$	37.64	2	.90	2	27.77	2	14.61	2	56.74	2
		s	3.45		2.49		3.01		1.47		5.97	
31 - 35	81	$\bar{X}$	36.16	5	.15	4	27.11	6	13.94	5	54.24	5
		s	4.48		2.41		3.75		1.58		6.96	
36 - 40	59	$\bar{X}$	36.06	6	-1.40	6	27.31	5	13.62	6	53.21	6
		s	4.00		2.45		3.61		1.53		6.22	
41 - 45	23	$\bar{X}$	37.56	3	-1.17	5	27.47	3	14.44	3	55.21	3
		s	3.94		2.36		4.46		1.37		6.46	
Other categories, no resp. - 6												
Analysis of variance		F=	4.5436		5.5281		2.5034		3.8993		4.0135	
Sign. of between-column differences		p	$<.01$		$<.01$		$<.05$		$<.01$		$<.01$	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
18. Socio-Econ. Level of Community												
High income - above $10,000	10	X̄	44.97	1	1.69	1	32.96	1	17.10	1	67.90	1
		s	5.39		2.61		4.10		2.06		8.04	
Moderate to high	38	X̄	40.05	2	.38	2	29.43	2	15.25	2	57.25	2
		s	4.49		2.02		2.98		1.96		6.45	
Moderate - $5,000-$7,000	113	X̄	37.52	3	.08	3	28.00	3	14.34	3	55.92	3
		s	3.29		2.56		3.20		1.35		6.24	
Low to moderate	93	X̄	35.60	4	-.25	4	26.64	4	13.59	4	54.06	4
		s	3.75		2.57		3.35		1.48		5.85	
Low - under $4,000	27	X̄	33.11	5	- .77	5	24.58	5	13.21	5	48.67	5
No response - 4		s	4.65		3.28		3.44		2.01		6.04	
Analysis of variance		F=	21.4274		1.7393		14.2400		14.8621		16.1646	
Sign. of between-column differences		p	:.01		N.S.		:.01		:.01		:.01	
19. Educ.-Cultural Background												
Well educated	33	X̄	41.25	1	.35	1	30.41	1	15.69	1	60.44	1
		s	5.55		2.20		3.90		2.34		8.49	
Moderately educated	202	X̄	37.24	2	.05	2	27.68	2	14.21	2	55.44	2
		s	3.62		2.48		3.30		1.46		6.02	
Poorly educated	49	X̄	33.55	3	- .54	3	25.36	3	13.18	3	51.04	3
		s	4.42		3.25		3.47		1.82		7.14	
Analysis of variance		F=	24.6726		1.6419		15.0504		15.0199		13.5797	
Sign. of between-column differences		p	<.01		N.S.		<.01		<.01		<.01	

TABLE I (Continued)

Treatment	Number	Measure	Experimental Variables						Control Variables			
			ReadComp	Rank	RC Dev	Rank	Vocab	Rank	Spell	Rank	Lang	Rank
20. Language Background												
Speaks another language at home	9	$\bar{X}$	35.58	2	.20	2	25.07	3	13.27	3	51.74	3
		s	3.84		2.07		3.40		1.53		4.21	
Hears but does not speak another language	93	$\bar{X}$	35.56	3	- .59	3	26.74	2	13.68	2	53.44	2
		s	4.13		2.87		3.48		1.58		6.56	
Neither hears nor speaks another language	178	$\bar{X}$	37.91	1	.30	1	28.18	1	14.50	1	56.26	1
		s	4.41		2.43		3.58		1.77		7.03	
No response - 5												
Analysis of variance		F=	4.9198		1.8962		4.1828		4.6405		3.7324	
Sign. of between-column differences		p	$<.01$		N.S.		$<.01$		$<.01$		$<.01$	

APPENDIX C

TABLE II

CURRENT PRACTICES AFFECTING THE ELEMENTARY-SCHOOL READING PROGRAM

1. Kindergarten policy at present

Choices	Number of Responses
No kindergarten	157
Half-day kindergarten - informal readiness activities	94
Full-day kindergarten - informal readiness activities	8
Half-day kindergarten - formal reading instruction (use of preprimers, for example, with majority of class)	28
Full-day kindergarten - formal reading instruction	2
Half-day Montessori	2
Full-day Montessori	0
No response	3

2. Present policy on kindergarten entrance age

No kindergarten	157
Five years old by Sept. 1	24
Five years old by Oct. 1	15
Five years old by Nov. 1	6
Five years old by Dec. 1	33
Five years old by Jan. 1	56
Five years old by Feb. 1	0
Five years old by Mar. 1 or later	0
No response	3

3. Present policy on grade one entrance age

Six years old by Sept. 1	50
Six years old by Oct. 1	28
Six years old by Nov. 1	6
Six yeare old by Dec. 1	53
Six years old by Jan. 1	145
Six years old by Feb. 1	8
Six years old by March 1 or later	0
No response	4

4. Present policy on readiness activities in grade one

No readiness activities in grade one.	10
Reading instruction started in Sept. for most all children with some readiness supplement	82
A maximum of 6-8 weeks of readiness for law group	28
6-8 weeks of readiness for everyone	80
Readiness activities provided for an indefinite period for each child until an objective readiness screening is passed and success seems assured	89
No response	5

5. Basic reading approach presently in use

Choices	Number of Responses
Traditional look-and-say method with gradual phonics. . .	112
Intensive phonic approach (such as Economy Co., etc.) . .	71
Linguistic.	4
Language arts (correlated listening, speaking, reading, and writing program).	95
Experience approach (child dictates story to be read) . .	7
No response .	5

6. Teacher-pupil relationship for basic reading instruction in grade one

Whole class taught together	7
Grouping.	283
One-to-one (individualized)	2
No response .	2

7. Present organization for reading in grades 1-3

Self-contained classroom (children stay in classroom for reading instruction).	228
Departmentalized (children go to "reading" teacher for reading instruction).	8
Joplin-type (children are grouped across grade levels-go to room where their level is being taught). . .	10
Within-grade grouping (teachers of the same grade level exchange some pupils for better grouping)	38
Non-graded.	7
No response .	3

8. Organization for reading in grades 4-6

Self-contained classroom (see explanation above).	183
Departmentalized.	21
Joplin-type grouping.	31
Within-grade grouping	53
Non-graded.	4
No response	2

9. Indicate the principal type of material used for basic instruction in grade 1

Basal readers - 1 series adopted and no other available .	23
Basal with supplements - all students use basal and supplementary readers used as needed.	210
Co-basal readers - 2 series used interchangeably to supplement one another.	24
Multiple basal - teacher's choice	17
Workbook-type program (Economy Co., for example) used for basic instruction.	15
Teacher-produced materials.	1
Trade books	0
Programmed materials.	0
Kits (such as SRA lab).	1
No response .	3

10. Indicate the principal type of material used for basic instruction in grades 2 and 3

Choices	Number of Responses
Basal readers - 1 series adopted and no other available	16
Basal with supplements - all students use basal and supplementary readers used as needed.	218
Co-basal readers - 2 series used interchangeably to supplement one another.	23
Multiple basal - teacher's choice	19
Workbook-type program (Economy Co., for example) used for basic instruction	13
Teacher-produced materials.	0
Trade books	0
Programmed materials.	0
Kits (such as SRA lab).	2
No response	3

11. Indicate the principal type of material used for basic instruction in grades 4-6

Basal readers - 1 series adopted and no other available	16
Basal with supplements - all students use basal and supplementary readers used as needed.	206
Co-basal readers - 2 series used interchangeably to supplement one another.	34
Multiple basal - teacher's choice	22
Workbook-type program (Economy Co., for example) used for basic instruction.	4
Teacher-produced materials.	1
Trade books	2
Programmed materials.	0
Kits (such as SRA lab).	6
No response	3

12. If you use a basal reader, which of these is being used predominantly throughout the elementary grades at present?

Allyn and Bacon	3
American Book Co.	17
Ginn and Co.	105
Harper Row (or Row Peterson).	16
D. C. Heath	0
Houghton Mifflin.	52
Laidlaw	4
Lippincott.	4
Lyons and Carnahan.	0
Scott Foresman.	72
Winston	
Other - Specify here _____	
No response	7

13. Children in the primary grades are currently receiving a supplementary phonics program in addition to whatever phonics is taught in the basal program

Choices	Number of Responses
Regularly scheduled	179
Frequently but unscheduled	53
Occasionally	31
Seldom	9
Never	18
No response	4

14. Children in grades 4-6 are currently receiving a supplementary study skills program to improve reading in content materials

Regularly scheduled	140
Frequently but unscheduled	68
Occasionally	60
Seldom	9
Never	12
No response	5

15. SRA kits are used

In all grades	21
In most grades	44
In some grades	118
In no grades	108
No response	

16. The EDL Controlled Reader is used

In all grades	1
In most grades	1
In some grades	12
In no grades	274
No response	6

17. Tachistoscopic drill on works and/or on phrases is given with flash equipment (such as the EDL Tach-X or the Keystone Overhead with flash attach.)

In all grades	2
In most grades	1
In some grades	32
In no grades	257
No response	2

18. Listening skills are taught by the use of tapes and/or records

In all grades	26
In most grades	11
In some grades	128
In no grades	127
No response	2

19. Study skills in locating, selecting, organizing and relating ideas in the content areas are taught through the use of kits, skilltexts, skill builders, or the frequent use of the SQ3R of similar technique

Choices	Number of Responses
In all grades	69
In most grades	73
In some grades	113
In no grades	37
No response	2

20. Programmed materials are used in the teaching of reading, phonics, or study skills:

In all grades	37
In most grades	22
In some grades	44
In no grades	186

21. A research project, or a trial program using other than the usual materials and/or method, is being carried on in one or more classrooms at the present time in some phase of reading instruction, as follows:

No research project or trial program	168
New readiness materials	4
A new initial approach to reading	24
A new basal series of readers	31
A new phonics program	17
A new skills program	15
New program other than mentioned above	25
No response	10

NOTES

APPENDIX D

TABLE III

EDUCATIONAL AND PROFESSIONAL NEEDS OF THE ELEMENTARY-SCHOOL READING PROGRAM AS REPORTED BY PRINCIPALS AND TEACHERS[1]

	PRINCIPAL	TEACHERS
1. Specialized Personnel		
Reading consultant	47	28
Remedial reading teacher	96	81
Resource or helping teacher	6	4
2. Teacher Education in Reading		
Pre-service, in-service, graduate courses	61	66
Methods and techniques for individualizing program	30	68
3. Materials and Equipment		
Supplementary books and materials	25	65
Diverse materials to meet individual needs	50	41
Special materials for phonics, vocabulary, comprehension, etc.	16	60
Machines and kits	39	32
4. New Approach or Different Organization for Reading	42	54
5. Smaller Classes	36	31
6. More Time to Teach and/or to Plan	19	36
7. Diagnostic Testing	16	25
8. Better Library Facilities and More Library Books	32	27

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1 Principals were requested to respond to two open-ended questions by listing: 1) what they felt were the greatest needs of the school in the area of reading and 2) what their teachers felt were the greatest needs in reading. The total sample included 294 schools. Responses to these questions were made by 260 principals and 258 teacher groups. All needs listed were tallied without consideration of priorities. The results were as indicated on the above table.

APPENDIX E

GLOSSARY

ANALYSIS OF VARIANCE - Analysis of variance is a technique used in planned research to determine how important each of several factors (or treatments) may be in producing certain results. For example, it may ascertain the effects of different approaches to reading instruction, or varying numbers of library books, or other relevant factors on reading achievement. A test can then be applied to discover whether or not the differences observed among the mean scores is greater than could be expected in a normal distribution of scores.

DEVIATION-FROM-REGRESSION SCORE - In this study, an expected achievement score was computed for each level of intelligence. The deviation-from-regression score is the difference between the real score and the expected score.

EQUATED FOR INTELLIGENCE - This process removes the effect of intelligence on achievement. It is the equivalent of measuring one group against groups of equal intelligence.

F RATIO - The F ratio is the relationship of the variation between the means of the groups to the variation within the groups. If the two variances are equal, the ratio is equal to one and the treatments are not different in effect. The higher the value of the F ratio, the greater the difference in effect of the treatments.

F TEST - This is a test of the significance of the departure of the F ratio from unity.

HAWTHORNE EFFECT - The enthusiasm engendered in doing something new regardless of the nature of the innovation.

LEVEL OF SIGNIFICANCE - This is the number of times in a hundred times that the difference observed between the groups or categories could have occurred by chance.

t TEST - This is a test of the significance of the difference between two groups.